# THE EFFECTS OF IMPLEMENTING "Q FOR QUALITY" ON THE BUSINESS PERFORMANCE

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**ABSTRACT:** Due to all of the changes that have taken place in today's dynamic, global markets, companies in the tourist industry have found it necessary to change their business strategy from one based on price to one based on quality. Quality has become a strategy that allows businesses to gain a distinct advantage over their competitors and therefore to survive in a highly competitive world. By means of a questionnaire based on the European Foundation for Quality Management (EFQM) model, this paper examines the question of whether critical factors based on quality, present in the philosophy and methodology of the "Q for Quality" Spanish Quality Management System applied specifically to the tourism industry, affect the performance of companies in the Spanish tourism sector. **Keywords:** quality, tourist sector, performance, "Q for Quality".

**RESUMEN:** Debido a los fuertes cambios que están ocurriendo en los mercados globales y dinámicos, las empresas del sector turístico reconocen que las estrategias basadas en el precio tienen que ser sustituidas por estrategias basadas en la calidad. La calidad se ha hecho una estrategia que permite a los empresarios ganar ventajas distintivas sobre sus competidores y, así, sobrevivir en un mundo muy competitivo. A partir de un cuestionario basado en un modelo de la European Foundation for Quality Management (EFQM), este estudio busca verificar en qué medida los factores subyacentes a la noción calidad, presentes en la filosofía y en la metodología del "C de Calidad" de los Sistemas de Gestión de la Calidad español, afectan la performance de las empresas españolas del sector turístico. **Palabras clave:** calidad, sector turístico, performance, "Q de Calidad".

**RESUMO:** Devido às fortes mudanças que estão a ocorrer nos mercados globais e dinâmicos, as empresas do setor turístico reconhecem que as estratégias baseadas no preço têm que ser substituídas por estratégias baseadas na qualidade. A qualidade tornou-se uma estratégia que permite aos empresários ganhar vantagens distintivas sobre os seus concorrentes e, deste modo, sobreviver num mundo altamente competitivo. A partir de um questionário baseado no modelo da European Foundation for Quality Management (EFQM), este estudo procura verificar em que medida os factores subjacentes à noção qualidade, presentes na filosofia e na metodologia do "Q de Qualidade" dos Sistema de Gestão da Qualidade espanhol, afetam a performance das empresas espanholas do setor turístico. **Palavras chave:** qualidade, setor turístico, performance, "Q de Qualidade"

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## INTRODUCTION AND OBJECTIVES

In recent years, businesses in the tourism sector have been obliged to make a shift from price based strategies to quality based strategies in order to adapt to and survive in today's highly globalised and change-able markets.

The dominant market strategy used until recently was based on the competitiveness of prices. This strategy has proven to be unsustain-able over time, as the supply curve does not depend on itself alone; it is also affected by external factors such as political, economic, social, environmental, and technological circumstances. In addition, the grow-ing access to and use of modern technologies such as the Internet has made it easier for customers to get a better deal than years ago when they depended on traditional tour operators. This means that price based strategy now has a new agent to contend with.

In addition, many other changes have taken place in the Spanish tourism industry in recent years. To name a few, travel preferences have changed, it has become easier to travel in low season, numer-ous low-cost companies have sprung up, and new tourist destinations with similar characteristics to traditional destinations and equivalent or lower prices have appeared on the market. These factors have led to a significant drop in the market share for Spanish tourism. Con-sequently, companies in the tourism sector have started looking for new tools with which to get a competitive edge in order to survive in today's highly competitive market. These new strategies focus on the quality of tourism and they are based on offering greater product dif-ferentiation to customers.

The challenges that the tourism industry will have to face in com-ing years include the professionalisation of the workforce, offering prices which are in line with market expectations, carrying out envi-ronmentally sustainable planning, and improving services, quality, and customer service.

Clearly, quality is essential to the survival of today's tourism in-dustry. Quality has become a strategy that helps companies to gain a competitive edge over other businesses in their sector and to survive in today's highly competitive world.

The important role that quality plays in today's business world helps us understand why theoretical and empirical research in this field is of such vital importance. Both kinds of research are essential in order to develop a theoretical-practical framework to help companies inter-ested in implementing quality as a way to compete in their field. In-deed, it is not surprising that quality—or more specifically, the critical factors or principles required to implement quality—as well as the in-fluence of quality on business performance, have been widely studied subjects in recent years.

Our main objective in this study is to analyse the advantages to companies in the tourism industry of adhering to a system focusing on quality. In our case, we chose to use the "Q for Quality" Spanish Quality Management System for this purpose. "Q for Quality" is the name of a Spanish association guaranteeing that companies in the Spanish tourism sector certified with the letter "Q" for Quality by their organization will be recognised for their high quality services nationwide. We aim to assess the degree to which implementing a Quality Management System such as this one is profitable for the businesses which do so, given that both the human effort and financial expenditures involved are significant. Thus, this study aims to measure the extent to which critical success factors based on quality, present in the philosophy and methodology of the "Q for Quality" system, improve the performance of the companies examined.

In order to present our work as clearly as possible, we have structured our paper in the following way. The first section describes the theoretical framework on which we have based our research, detailing all of the critical success factors which are considered keys for success when implementing a Total Quality Management system. The second section outlines the methodology used in our study and specifies the geographical area from which the businesses using the "Q for Quality" system were selected (Principado de Asturias, Spain). The methodology section then goes on to describe the questionnaire design, the process employed in obtaining the data, and the techniques used in analysing the data. The third section presents the results from the data analyses. The fourth and final section discusses the main conclusions drawn from our study and the implications for future research.

## THEORETICAL FRAMEWORK

The main principles of Total Quality Management (TQM) stem from the ideas put forth by the main gurus of Quality (Deming, 1982, 1986; Juran, 1988; Juran and Gryna, 1993; Ishikawa, 1976, 1985; Crosby, 1979; Feigenbaum, 1991). Their ideas reflect not only the strong points but the weak points in quality management as well. Although TQM's founding principles have not offered solutions to all of the problems encountered upon its application (Dale, 1999), they have been of vital importance in the development of further research identifying the critical success factors (CSF's). The ultimate goal of TQM is to offer companies a clear idea of which quality components to focus on, thus helping them to improve customer satisfaction and achieve greater efficiency in their business processes.

Over the past decades, the identification of the most fundamental CSFs has come from three different areas: (1) the ideas of the Quality gurus (Crosby, 1979; Deming, 1982, 1986; Isikawa, 1985; Juran, 1988;

Feigenbaum, 1991); (2) models for the implementation of Quality (EFQM, Deming, MBNQA, and Iberoamericano); and (3) findings from empirical research carried out on the topic. A thorough bibliographical review reveals that there is no consensus when it comes to identifying the most vital CSF's; each researcher emphasises those which he/she considers the most essential in order to manage the organization most effectively, improve competitiveness, and achieve business excellence (Kanji, 1998b).

Numerous authors have carried out research aimed at identifying critical success factors. Relevant studies include the following: Saraph *et al.* (1989), Flynn *et al.* (1994), Powell (1995), Anderson *et al.* (1995), Badri *et al.* (1995), Black and Porter (1996), Ahire *et al.* (1996), Li (1997), Leal (1997), Forza and Fillipine (1998), Grandzol and Gershon (1998), Tamimi (1998), Quazi *et al.* (1998), Thiagarajan and Zairi (1998), Easton and Jarrel (1998), Joseph *et al.* (1999), Rao *et al.* (1999), Zhang *et al.* (2000), Motwani *et al.* (2001), Sureshchandar *et al.* (2001), Behara (2001), Santos and Escanciano (2002), Anthony *et al.* (2002), and Conca *et al.* (2004).

In addition to the aforementioned research, different Quality Models were devised to help businesses implement TQM. These models serve as guides to TQM implementation and self-evaluation within companies in regards to their Quality practices. Their main aim is to bring about continual improvement within businesses. Three examples of such models are the Malcolm Baldrige National Quality Award model (USA), the European Foundation for Quality Management (EFQM), and the Deming Prize in Japan. Each one of these models groups together those CSF's considered to be the most important; although there are differences among the three models, they do present certain elements in common (Ritchie and Dale, 2000).

The European Excellence Award (EEA) was created in 1991 by the EFQM. It was intended to serve as a basis for evaluating organizations presenting themselves as candidates for the European Quality Award. The content of this award was based on the expertise of European business management leaders as well as the experience drawn from earlier awards such as the Deming Prize in Japan and the Malcolm Baldrige Award in the United States. The EEA is used when a company wishes to go beyond a certification from the International Organization for Standardisation (ISO) to achieve Total Quality Management. Van der Wiele *et al.* (2001) consider that the EFQM model defines and describes TQM in a way which is clearly understandable to business management.

Although the EFQM was originally designed to evaluate companies wishing to compete for the European Quality Award, it quickly turned into a management tool used for self-evaluation within companies, al-

lowing them to assess their present level of Quality before developing a strategic quality plan. As an assessment tool, the EFQM introduces some very useful concepts into the field of business management. For example, it promotes an emphasis on processes, partnerships as mechanisms for creating competitive advantages, and results for the different target groups within an organization.

As seen in Figure 1, the EFQM Excellence Model is comprised of nine criteria used to evaluate the extent to which an organization has progressed toward excellence. Given that this model strives to identify both strong and weak points, it considers the relationship between an organization's employees, its processes, and its performance (Camisón *et al.*, 2007). Its structure is clearly divided into two distinct parts: (1) "*Enablers*", which refers to what an organization does and how it does it; to do so, the EFQM analyses in what ways excellent companies carry out their key activities and how they manage to achieve the expected results. The model offers five criteria related to enablers: leadership; people; strategy; partnerships and resources; and processes, products, and services; (2) "*Results*", which reflects the achievements obtained by the organization in question for all of their target groups (customers, employees, and society) and in regards to their key objectives (EFQM, 2010).
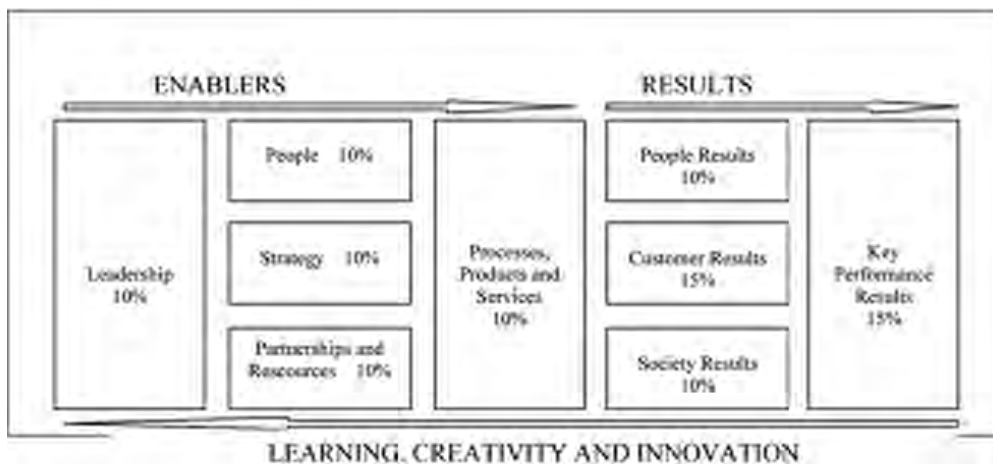


*Source: EFQM, 2010*

**Figure 1: EFQM Business Excellence Model**

In September, 2010, the results from the revision of the EFQM Business Excellence Model were presented at the Annual Forum in Brussels, and a new version, the EFQM Model 2010, was announced. This new version is characterised by a more straightforward writing style and it addresses specific challenges faced by today's organizations, such as a strong tendency toward innovation, creativity, risk management, and sustainability. At the same time, the new model offers a more

practical focus, making it more accessible as a point of reference for all kinds of businesses.

The updated version of the EFQM includes the following: (1) slight changes in the eight Principles of Excellence; (2) suggestions as to specific issues to address in the different sub-criteria; (3) weighting of the different criteria and sub-criteria; and (4) contents from RADAR Evaluation Forms. After 2010, a year of transition in which the old and new models coexisted, the new model should be completely operative from the year 2011 onward. The only exception to this is organizations that wish to apply for the EFQM EEA 2010; in this case, they will have to use the new EFQM Model 2010.

In comparison to previous versions, the new version of the EFQM is characterised by the following factors: (1) it is a generic model applicable to all types of organizations, for-profit or non-profit alike, regardless of the segment of the market they pertain to; (2) the writing style has been simplified and it has aimed to broaden its scope, assuring that the information provided is relevant to all kinds of activities and sectors; (3) it focuses on both emerging and traditional trends; (4) it uses language which is readily understandable to managers, not only to EFQM experts; (5) it establishes essential definitions and concepts aimed at promoting action and, following up on the work done in 2005, it offers a summary of the basic concepts of the model.

In regards to the studies attempting to show a connection between Quality Management and improved business results and performance, few studies have found either a direct or indirect relationship between these variables. The data indicates that there are connections between the factors in the TQM model and business performance, but it cannot be strictly demonstrated that TQM leads to greater performance. Some findings point to a correlation between the two (Powell, 1995), while in other studies the relationship is very weak and not always significant (Sousa and Voss, 2002). Therefore we can conclude that the TQM does not always improve performance.

This lack of conclusive findings is due to the difficulty in analysing the effects on financial performance of implementing Quality Management Systems (Marín, 2009). Quality does not affect an organization's overall performance directly. There are intermediate factors, such as productivity, customer and employee satisfaction, and corporate image, which mediate between quality and performance. Such intermediate factors are themselves influenced by many other variables, making it difficult to establish a clear relationship between quality and financial results (Hardie, 1998). Fisher (1991) states that quality produces improvements in quality results and/or operational results in a relatively short period of time, but affirms that for such an improvement to become apparent in the form of financial results, a longer period of time is needed.

Despite these difficulties, research by authors such as Sirota *et al.* (1994), Powell (1995), Easton and Jarrell (1998), and Sun (1999a) offers empirical evidence that there is indeed improvement in performance in the long term in companies which have implemented TQM. In Spain, numerous studies have been carried out in recent years on this subject, although the majority of them have focused exclusively on analysing the effects of the ISO 9000 standards on business performance (Table 1).

**Table 1: Main Spanish studies analysing the effects of implementing TQM on business performance**

| Study | Methodology | Main conclusions |
|---|---|---|
| Leal (1997) | Managers surveyed 113 Spanish companies All sectors Spearman's Rank Correlation Coefficient | No clear relationship was found between TQM factors and global performance. However, a significant connection was found between TQM factors and TQM performance. |
| Tarí and Molina (1999) | Postal survey sent to managers 106 companies | Businesses in the Alicante region that employed quality management techniques showed improvements in business results, customer and employee satisfaction, and social impact. |
| Casadesús and Jiménez (2000) | Managers surveyed 288 companies certified in Catalonia, Spain | Some companies reported having obtained internal benefits (related to the management of human resources and operations) and external benefits (improvement in customer satisfaction and financial results). |
| Martínez-Lorente et al. (2000) | Postal survey sent to managers 217 companies | Quality Management has a positive effect on operational results and on financial results. |
| Merino (2001) | Postal survey sent to managers of 1,000 companies Case study | There are significant differences in the extent to which quality management was used and thus in its influence on results in different organizations in this sector. Those businesses which used QM to a greater extent reported greater improvements in their results. |
| Escrig et al. (2001) | 231 industrial and service companies | TQM is found to have a positive impact on financial results. |
| Casadesús et al. (2001) | Postal survey sent to managers 502 companies | Sixty-five percent of the companies report both internal and external improvements upon implementing the ISO 9000. There is a notable relationship between these benefits and motivation, as companies which become certified due to internal motivations obtain greater benefits. |

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| Study | Methodology | Main conclusions |
|---|---|---|
| Escanciano (2001) | Postal survey sent to managers 749 companies | The ISO 9000 produces benefits in these areas: customers, employees, suppliers, working conditions, and efficiency. What is more, the level of satisfaction obtained by companies depends on the extent to which they have advanced toward the full implementation of TQM. |
| Leal and Roldan (2001) | 113 companies with Quality system | A positive relationship is found between the implementation of TQM and performance, both in terms of quality performance and global performance. |
| Heras et al. (2000) | Postal survey sent to managers All sectors Sample: 800 companies t-test | This is an empirical analysis of the effect of ISO 9000 usage on the economic profitability of companies. Economic profitability is greater in certified companies than in those without certification. |
| Arana and López (2002) | Longitudinal study. All sectors 800 companies (400 with ISO 9001 or ISO 9002 and 400 not certified) from Basque Country (Spain) Longitudinal methodology | Companies which are certified according to ISO 9000 standards are found to be more profitable than those which are not certified, both before receiving certification and after doing so. |
| Heras et al. (2002) | Analysis of commercial data bases 800 companies | Certified companies are more profitable than the control group of non--certified companies, both before and after their certification. |
| Nicolau and Sellers (2002) | Certified companies (40 quality certifications from the Spanish Stock Market) All sectors Event study methodology | Stock value responds positively to quality awards. The stock market reacts positively when certification is obtained, which in turn causes an increase in fluctuations in the price of their stocks. |
| Martínez--Lorente and Martínez (2003) | Postal survey sent to managers and data bases 442 industrial companies (366 ISO 9000 certified) | The TQM has a positive effect on operational results. Nevertheless, the simultaneous application of systems following the ISO 9000 and the TQM nullifies these positive effects. The only variable which improves upon implementing the ISO 9000 is profitability, although there could be other explanations for this improvement. |
| Merino and Díaz (2003) | 965 industrial companies | A connection is found between TQM and performance. |
| Arana et al. (2004) | Survey. Delphi Study. 800 companies Basque Country, Spain Test for difference between means | Those companies with ISO 9000 certification, which were more profitable than the non-certified companies, already showed higher profitability before obtaining certification. |

*(cont.)*

| Study | Methodology | Main conclusions |
| --- | --- | --- |
| Heras et al. (2004) | 400 certified companies and 400 non- certified companies (Basque Country, Spain) | Certified companies show more growth in sales and greater profitability than non-certified companies. Certification itself, however, is not related to these improvements. |
| Casadesús et al. (2004) | Postal survey sent to managers 399 companies | This study analyses the perceptions regarding the benefits and costs of implementing the ISO 9000, as compared to findings from a similar study done in 1998. Results reveal a significant drop in the perception of the benefits of its implementation. |
| Climent (2005) | Industrial, construction, and service sectors. 183 companies from the Valencia Region (Spain) Quadratic regression | The implementation of Quality Systems increases productivity. What is more, the longer a company has been certified, the greater the increase in productivity is found to be. |

*Source: Adapted from Heras et al. (2005:8) and Marín Vinuesa (2009:6-12)*

## RESEARCH METHODOLOGY

Our main aim in carrying out this empirical study was to observe whether the CSF's for quality affected the performance of the companies analysed. To do so, we administered a questionnaire based on the EFQM criteria, since the "Q for Quality" is situated midway between the international quality model, ISO, and the European model, EFQM.

The methodology used in this empirical study can be grouped into the following stages. First of all, a data base was created for the companies located in the Spanish region known as "Principado de Asturias" which were certified with a "Q for Quality" label. The information with which the data base was compiled was obtained from the ICTE website (http://www.icte.es) as well as that of TURGALICIA (www.turgalicia.es). The decision was made to exclude travel agencies from the target population, given our consideration that in general the employee responsible for each branch might not be able to respond objectively to the questionnaire. Therefore, our target population finally consisted of 69 of the 101 certified companies in the region. The next step involved elaborating a questionnaire and sending it via e-mail to each of the companies included in the previously selected sample, accompanied by a letter of introduction explaining the purpose of our study.

The questionnaire which was designed for and implemented in this study consists of two parts. The first part is made up of introductory questions intended to gather information to form company profiles. The second part consists of a series of questions referring to the re-

sults obtained after implementing TQM, following the EFQM Excellence Model. These questions are grouped into four clusters (variables) which correspond to four of the nine criteria from the EFQM: (1) Customer results, 7 items; (2) People results, 7 items; (3) Society results, 5 items; and (4) Key performance results, 6 items. The items for this questionnaire were developed using the questions included on the EFQM model as a point of reference.

**Table 2: Items on questionnaire**

| Label | Description |
| --- | --- |
| CR1 | Customer satisfaction involving issues such as company image, quality of services, after-sales services, customer loyalty, etc. is measured by means of surveys, visits, meetings, or other similar activities. |
| CR2 | Other indicators of customer satisfaction are also measured such as complaints, returns, etc. |
| CR3 | All of the trends over the past three years involving customer results are analysed and they present an improvement or a maintained high level of performance during this time period. |
| CR4 | Certain objectives are established in this context and the customer results reach the objectives set by the organization. |
| CR5 | Our results are compared with those of our competitors and this comparison is favourable; if the comparison is not favourable, we learn from it. |
| CR6 | The customer results are analysed and improvement plans are established. |
| CR7 | All of these customer results encompass the most relevant areas of the organization and they are grouped adequately by type of customer, product, etc. |
| PR1 | Employee satisfaction is evaluated by means of surveys and meetings on topics related to working environment, working conditions, motivation, etc. |
| PR2 | Other indirect indicators of employee satisfaction are also measured, such as the number of complaints, employee absenteeism, employee turnover, etc. |
| PR3 | All of the trends over the past three years involving people results are analysed and they present an improvement or a maintained high level of performance during this time period. |
| PR 4 | Certain objectives are established in this context and the people results reach the objectives set by the organization. |
| PR 5 | The people results obtained in our organization are compared with those of our competitors and this comparison is favourable; if the comparison is not favourable, we learn from it. |
| PR 6 | The people results are analysed and improvement plans are established. |
| PR 7 | All of these people results encompass the most relevant areas of the organization and they are grouped adequately by departments, sections, work stations, etc. |
| SR1 | The opinions that the community has of the organization regarding its implication with the environment, social activities, etc., are evaluated by way of surveys and/or meetings with representatives from different sectors of society, press appearances, public reports, etc. |

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| Label | Description |
|---|---|
| SR 2 | All of the trends over the past three years involving society results are analysed and they present an improvement or a maintained high level of performance during this time period. |
| SR 3 | Certain objectives are established in this context and the society results reach the objectives set by the organization. |
| SR 4 | The society results obtained in our organization are compared with those of our competitors and this comparison is favourable; if the comparison is not favourable, we learn from it. |
| SR 5 | The society results are analysed and improvement plans are established. |
| KPR1 | Economic, non-economic, financial, and non-financial key performance results (benefits, margins, productivity, market share, etc.) of the organization are evaluated. |
| KPR 2 | All of the trends over the past three years involving key performance results are analysed and they present an improvement or a maintained high level of performance during this time period. |
| KPR 3 | Certain objectives are established in this context and the key performance results reach the objectives set by the organization. |
| KPR 4 | The key performance results obtained in our organization are compared with those of our competitors and this comparison is favourable; if the comparison is not favourable, we learn from it. |
| KPR 5 | The key performance results are analysed and improvement plans are established. |
| KPR 6 | All of these key performance results encompass the most relevant areas of the organization and they are grouped adequately by products, geographical location, branch, etc. |

These items are designed to measure how CSF's affect the performance of companies which have implemented a Quality Management System in the Principado de Asturias (Spain). The scale used to measure the items is a 5-point, Likert-type scale, ranging from 1 = completely disagree to 5 = completely agree.

The basic information concerning the empirical research is presented in Table 3. Of the questionnaires which were responded to, 38.2% come from hotels and tourist apartments, 29.4% from rural Bed and Breakfasts, 14.7% from restaurants, 8.8% from nature reserves, and lastly, 8.8% from tourist offices.

## ANALYSES AND INTERPRETATION OF RESULTS

### *Descriptive analysis*

Table 4 presents the data for the four groups of criteria being measured. We find that the implementation of Quality Management affected the results for each of the variables (customer, people, society, and key performance results) positively. The criteria which are most highly valued by the businesses surveyed after certification are customer re-

sults (4.49 average) and key performance results (4.41), followed closely by employee results (4.27) and society results (3.83). This clearly indicates that the implementation of a Quality Management System, in this case the "Q for Quality", affected the results obtained by these companies favourably.

**Table 4: Stages of empirical research and specifications regarding fieldwork**

| Stages | Description |
|---|---|
| Questionnaire | Items based on those in European Quality Model questionnaire |
| Data collection | Target Population: Companies with "Q for Quality" labels<br>Geographical Location: Principado de Asturias, Spain<br>Population: 69 companies<br>Sample size: 34 companies<br>Response rate: 49.27%<br>Sampling error: 11.16 %<br>Confidence level: 95 %  (Z= 1´96 ; p=q=0,5)<br>Method of data collection: E-mail and telephone<br>Data collection period: From 15 April to 15 June, 2010 |
| Data analyses | Tabulation of data: SPSS Statistical Programme<br><br>Descriptive Analysis<br><br>The Student's t-test: the objective of this test is to determine whether there is a statistically significant difference between the means of two given variables<br><br>Reliability and validity of the scales determined (Exploratory Factor Analysis) |

**Table 4: Descriptive statistics**

| | Before certification | | | After certification | | |
|---|---|---|---|---|---|---|
| | Mean | Standard deviation | Variance | Mean | Standard deviation | Variance |
| Customer results | 3.3754 | 0.86351 | 0.746 | 4.4916 | 0.77067 | 0.594 |
| Employee results | 3.4048 | 0.93353 | 0.871 | 4.2717 | 0.91419 | 0.836 |
| Society results | 2.9353 | 0.85524 | 0.731 | 3.8353 | 1.20148 | 1.444 |
| Key performance results | 3.7069 | 1.04401 | 1.090 | 4.4167 | 0.82189 | 0.676 |

A detailed representation of the four criteria considered and the respective items used to measure each of them is presented in Figure 1.

In the case of customer results, the criteria with the highest post--certification rating, the mean after certification (4.49) is 1.12 points higher than the mean prior to the implementation and certification of the "Q for Quality". From the analysis of the items referring to different quality management techniques, we find that the most commonly used strategies for this criteria are as follows: companies analyse customer results and establish improvement plans; customer satisfaction is measured by means of surveys, visits, meetings, or other similar ways of gaining an understanding of customers' opinions of the company, the quality of its services, after-sales service, loyalty, etc.; and the objectives which are established in regards to desired improvements in customer results are reached. In contrast, the quality management strategy related to customer results which is least commonly cited is that of comparing the companies' results with those of their competitors.
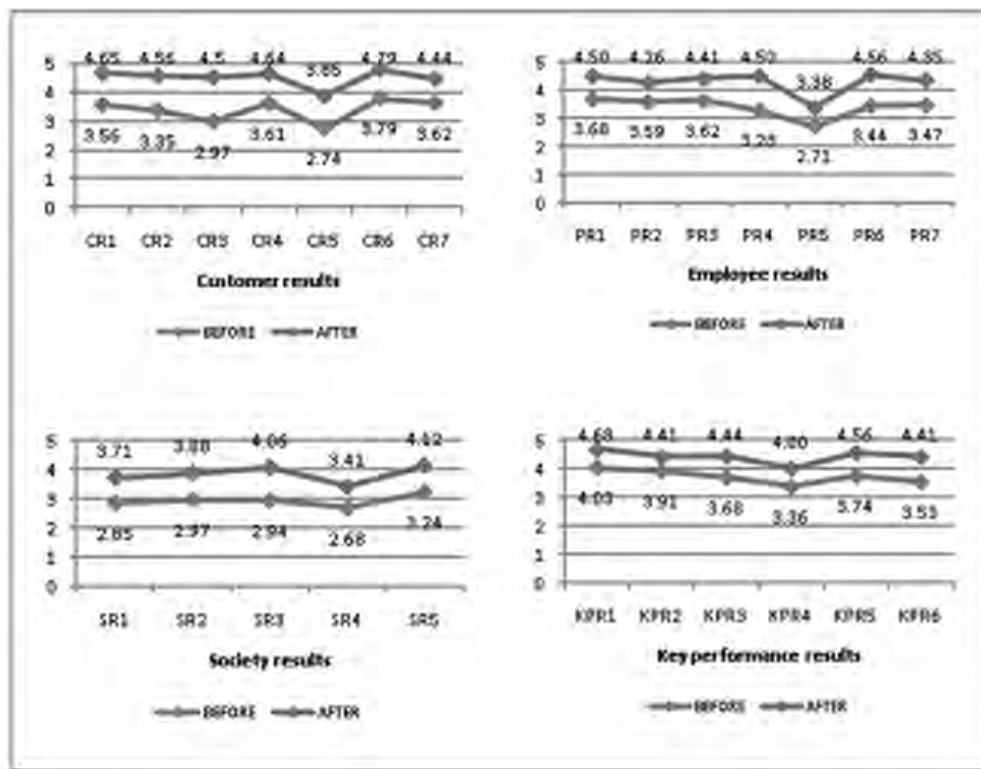


**Figure 2: Quality results before and after implementing and certifying the "Q for Quality"**

The average score obtained in key performance results is 4.41, which is very close to the results for customer results. There is a rise of 0.71 in the mean score after certification. As in the case of customer results, we find that the companies surveyed evaluate both economic and non-economic, as well as financial and non-financial key performance results (benefits, margins, productivity, market share, etc.). They also analyse their key performance results, establish improvement plans, and form specific objectives in this context which are ultimately reached.

As in the case of customer results, the quality management strategy which is least commonly selected for key performance results involves the comparison of companies' results with those of their competitors.

The third most valued criteria, with a global average of 4.27 and a rise after certification of 0.87, are employee results. We find that in general terms, companies analyse people results and establish improvement plans. They also evaluate employee satisfaction by means of surveys and meetings dealing with the working environment, working conditions, motivation, etc. In addition, they establish certain objectives regarding employee results and finally manage to reach those objectives. Once again, as in the two other criteria examined, companies are reticent to compare their employee results with those obtained by their competitors.

Lastly, the criterion which is given the lowest rating is society results, with a post-certification average of 3.83 and an increment of 0.90 after certification. From the analysis of individual items on the questionnaire, we find that companies analyse society results and establish improvement plans, as well as setting down certain objectives in this context which are finally reached. Companies also report analysing the trends observed in society results over the three previous years and they claim to see improvement or to maintain a high level of performance in this area during this time. Yet again, we find that the quality management strategy which is least utilised is that of comparing companies' own society results with those of their competitors.

After finishing the descriptive analysis, we proceeded to apply a paired sample t-test for the two samples (certified and non-certified companies), allowing us to compare the means of the two groups before and after certification. The purpose of carrying out this test is to determine whether there are significant differences between the variables; if the significance level of the Student's t-test is < 0.05, we reject the hypothesis of equality of means, which is to say that significant differences exist. If this is this case, we can affirm that there is an association between the dependent and independent variables. Thus, this test permits us to test the veracity of the null hypothesis, which states that no significant differences exist between the two samples. In our study the data are paired, as the same companies were asked to rate a series of items at two distinct moments, before becoming certified and after obtaining certification.

Table 5 shows the results from the Student's t-test comparing the means of certified and non-certified companies, with a level of significance of <0.05 for each of the four variables analysed. The null hypothesis was rejected for each of the variables, leading us to conclude that there is a significant relationship between the results in each area (customer, people, society, and key performance) and the implemen-

tation of the "Q for Quality" system. In more general terms we can conclude that there is an association between performance and the implementation of Quality Management certification in companies. The same analysis was carried out for each one of the items on the questionnaire used to measure each of the four variables. The level of significance observed for each separate item is <0.05, indicating that the difference in means is clearly significant for each item on the questionnaire both before and after certification. This reveals that there is a correlation between each of the items and companies' certification status.

**Table 5: Statistical test comparing means of certified and non-certified companies**

| Variables | Means | | Mean Difference | Test | |
|---|---|---|---|---|---|
| | Without certification | With certification | | Student's t-test | Significance |
| Customer results | 3.3754 | 4.4916 | -1.11625 | -10.376 | 0.000 |
| People results | 3.3569 | 4.2717 | -0.91485 | -8.316 | 0.000 |
| Society results | 2.9353 | 3.8353 | -0.90000 | -8.242 | 0.000 |
| Key performance results | 3.7069 | 4.4167 | -0.70980 | -6.941 | 0.000 |

## VALIDATION OF THE SCALES

*Reliability*

In this section we discuss the methods used in determining the reliability and validity of the scales used in this study to measure the influence of CSF's for quality on companies' performance. It is necessary to carry out a statistical analysis of the measurement instruments in order to determine whether the results can be adequately measured by way of the items comprising the questionnaire. In other words, we have to examine the extent to which the scales used to measure the results are reliable and valid instruments with which to do so.

In validating the proposed measurement scales, we chose to evaluate their psychometric properties - namely the scales' unidimensionality, validity, and reliability - following the methodological recommendations offered by Churchill (1979) and Anderson and Gerbing (1988).

To calculate reliability, we chose to examine the scales' internal consistency, as this is the most commonly used method, according to Sánchez and Sarabia (1999). This method of determining scales' reliability involves the following steps: (1) Item-total correlation, used to guarantee the internal consistency of the scales; this filtration process consists of omitting those indicators with low item-total correlations, in such a way that those indicators whose total correlation does not

reach the generally agreed upon minimum value  of 0.3 are eliminated; (2)  An Estimation of Cronbach's Alpha  is applied to each item measured, while the standardised Cronbach's α is used for the sample as a whole. In the literature, Cronbach's α coefficient is the preferred method with which to measure reliability, and recommendations for its use state that standardised values should be higher than 0.8.

**Table 6: Analysis of reliability of measurement scales**

| Item | Item-total Correlation | Alpha if item is eliminated | Cronbrach's α Coefficient | Eliminated items |
|---|---|---|---|---|
| Customer results | | | | |
| CR1 | 0.776 | 0.873 | | |
| CR2 | 0.869 | 0.863 | | |
| CR3 | 0.817 | 0.865 | | |
| CR4 | 0.774 | 0.874 | α = 0.896 Standardised α = 0.933 | No items eliminated |
| CR5 | 0.441 | 0.941 | | |
| CR6 | 0.858 | 0.883 | | |
| CR7 | 0.842 | 0.862 | | |
| Employee results | | | | |
| PR1 | 0.859 | 0.931 | | |
| PR2 | 0.902 | 0.926 | | |
| PR3 | 0.881 | 0.928 | | |
| PR4 | 0.703 | 0.944 | α = 0.943 Standardised α = 0.948 | No items eliminated |
| PR5 | 0.739 | 0.948 | | |
| PR6 | 0.798 | 0.936 | | |
| PR7 | 0.897 | 0.926 | | |
| Society results | | | | |
| SR1 | 0.702 | 0.936 | | |
| SR2 | 0.868 | 0.905 | | |
| SR3 | 0.891 | 0.901 | α = 0.931 Standardised α = 0.933 | No items eliminated |
| SR4 | 0.811 | 0.918 | | |
| SR5 | 0.836 | 0.912 | | |
| Key performance results | | | | |
| KPR1 | 0.906 | 0.934 | | |
| KPR2 | 0.895 | 0.930 | | |
| KPR3 | 0.872 | 0.933 | α = 0.947 Standardised α = 0.959 | No items eliminated |
| KPR4 | 0.762 | 0.958 | | |
| KPR5 | 0.859 | 0.939 | | |
| KPR6 | 0.896 | 0.930 | | |

By carrying out item-total correlation analyses, we confirmed that there were no items on our scales with correlation coefficients lower

than the recommended minimum of 0.3 (Nurossi, 1993). The Cronbach's alpha coefficients for each of the scales were higher than 0.7, a minimum value recommended by Nunnally (1978). This is an indication of the adequate internal consistency of the scales.

*Unidimensionality (Exploratory Factor Analysis)*

An essential step in ascertaining the specificity of a scale and thus determining its suitability involves determining the extent to which it is one-dimensional. This means that underlying the whole set of indicators and items which make up the scale should be one common concept which gives unity to the construct. In order to test whether this was in fact the case for our scales, we carried out Exploratory Factor Analysis (of principal components with varimax rotation), which allowed us to identify the underlying dimensions in each of the constructs. This method was also used to corroborate the reliability of the scales.

Prior to carrying out factor analysis, it is necessary to determine whether the data obtained via questionnaires are adequate to undertake such an analysis. To do so, the correlation matrix must be examined to see if it is possible to use factor analysis. As summarised in Table 7, the following steps were taken: (1) The *correlation matrix* was examined to insure that among all of the available variables there were a significant number of high correlations (> 0.5), as well as ascertaining that the *determinant of the correlation matrix* had a value close to zero in all of the scales; (2) *Bartlett's test of sphericity* was carried out. The results allowed us to reject the hypothesis that the variables were uncorrelated in the population. This is due to the fact that the value obtained in this test was high and was associated with a level of significance of lower than 0.05; (3) *The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)* produced values higher than 0.7; and (4) *The Measure of Sampling Adequacy Index (MSA Index)* stipulates that no values under 0.5 should be admitted; in this study, none of the values fell below this cut-off point, the majority being higher than 0.7.

**Table 7: Indicators of correlations among variables**

|  | Determinant of the correlation matrix | Bartlett's test of sphericity | Measure of Sampling Adequacy | KMO Index |
|---|---|---|---|---|
| Customer results | 0.000 | 257.717  sig 0.000 | (0.746 – 0.797) | 0.770 |
| Employee results | 0.000 | 231.133 sig 0.000 | (0.738 – 0.874) | 0.806 |
| Society results | 0.002 | 187.355 sig 0.000 | (0.542 – 0.703) | 0.647 |
| Key performance results | 0.001 | 207.554 sig 0.000 | (0.879 – 0.897) | 0.898 |

After carrying out factor analysis, it was not necessary to eliminate any of the items from the scales. As shown in Table 7, for each of the variables under consideration the factor loadings are higher than 0.5, while the minimum required factor loading is considered to be 0.3 (Hair *et al.*, 1999). In all of the scales, the accumulated percentage of explained variance is higher than 50%. In addition, the *Cronbach's* alpha coefficient, applied as an indicator of the scales' reliability, is higher than the recommended minimum value of 0.7. Some of the items even surpass the more rigorous minimum value of 0.8 proposed by Grande and Abascal (1999).

### Table 8: Unidimensionality study

| Criteria | Factors identified | Variables included in factor | Weight of each variable n factor | Percent of information explained | Cronbach's Alpha |
|---|---|---|---|---|---|
| Customer results | F1: RES_CUST | CR1<br>CR2<br>CR 3<br>CR 4<br>CR 5<br>CR 6<br>CR 7 | 0.885<br>0.936<br>0.918<br>0.859<br>0.515<br>0.920<br>0.867 | 72.890% | α = 0.896 |
| Employee results | F1: RES_PEO | PR1<br>PR2<br>PR3<br>PR4<br>PR5<br>PR6<br>PR7 | 0.907<br>0.939<br>0.923<br>0.765<br>0.802<br>0.848<br>0.930 | 76.677% | α = 0.943 |
| Society results | F1: RES_SOC | SR1<br>SR2<br>SR3<br>SR4<br>SR5 | 0.785<br>0.931<br>0.941<br>0.872<br>0.909 | 79.129% | α = 0.931 |
| Key performance results | F1: RES_KEY | KPR1<br>KPR2<br>KPR3<br>KPR4<br>KPR5<br>KPR6 | 0.943<br>0.929<br>0.917<br>0.826<br>0.910<br>0.936 | 82.981% | α = 0.947 |

From the results obtained upon carrying out the aforementioned tests to verify the reliability of the scales intended for use in this study, we were able to ascertain that apart from the proposed scales all being one-dimensional in nature, they were also highly reliable, free from random errors, and capable of providing consistent results.

## 4 - CONCLUSIONS

After analysing the results obtained in this study, we can conclude that the Asturian companies in the tourism sector which have implemented the "Q for Quality" system have noted improved levels of performance. This observation should lead other companies in the tourism industry to implement Quality Management Systems, given that the investment in their implementation and the constant improvement of the quality of services achieved by doing so are likely to bring them important benefits.

For these reasons, we are in agreement with Claver *et al.* (2006), who conclude, along with other researchers, that the implementation of a Quality Management System improves efficiency and employee satisfaction, and as a result, produces positive effects on sales and improves companies' competitiveness.

Interestingly, some of the companies in our study noted that the characteristics of the "Q for Quality" (prestigious, differentiating, reliable, and rigorous) meant that the mere fact of having the "Q" label was in itself a competitive advantage when viewed alongside their competitors who did not have such a distinction. Ruiz *et al.*, 1995 (in Albacete, 2004) indicate that it is necessary to offer excellent services to tourists and in this way the organization will manage to reinforce the loyalty of its present customers and increase the possibility of attracting new ones. Clearly, quality is an important strategy that allows companies to improve their services and helps them to set themselves apart from their competitors. This is of special importance as it offers businesses in the tourism sector the possibility of gaining a competitive edge in such a dynamic and competitive market.

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